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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/069,049

02/21/2002

David A Nadin

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9300

7590

03/14/2003

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1100 North Glebe Road 8th Floor
Arlington, VA 22201-4714

EXAMINER

WIGGINS, JOHN DAVID

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/069,049

Applicant(s)
David A. Nadin

Examiner
David J. Wiggins

Art Unit
2856



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on February 21, 2002 (Application received for US PTO patent)
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Feb 21, 2002 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 02, 05 6) ☐ Other:

Art Unit: 2856

Part III DETAILED ACTION

Examiner's Office Action

Foreign Priority

1. *Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file per International Bureau application of PCT/GB2001/02806 [PCT International Filing Date: 06/26/2001; PCT Priority Date: 06/28/2000; and 35 U.S.C. § 102(e) Date: 02/21/2002]: in regards to United Kingdom Patent No. 0015691.9 with filing date listed as June 28, 2000 and this 35 U.S.C. § 371 application filing.*

Drawings

2. *This application has been filed with formal drawings which have been judged acceptable on their technical merit by the Examiner, while also judged to possess acceptable quality for meeting drawing requirements of any Patent Drawing Review to be done by a US PTO draftsman after the 02/21/2002 filing date.*

Art Unit: 2856

Specification

3. The disclosure is objected to because of the following informalities:

On Page 15, line 20 of the Abstract Sheet; after the word "mounted", please consider inserting the following phrase:

--- near the gap in transistor fashion ---

On Page 10, claim 1, line 07; after the words "cover and", please consider inserting the following phrase:

--- said bagged region of ---

On Page 10, claim 1, line 12; after the words "the inside", please consider inserting the following phrase:

--- of said fluid container ---

On Page 11, claim 7, line 11; after the words "the inside", please consider inserting the following phrase:

--- of said aircraft fuel tank ---

On Page 11, claim 7, line 04; after the word "source", please consider inserting the following term: --- area or areas ---

On Page 11, claim 7, line 07; after the words "to check", please consider replacing the text "subject areas" with the following phrase: --- suspected leakage source areas ---

Art Unit: 2856

Appropriate correction is requested or required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

5. Claims 1-3, 4 and 6 are rejected under 35 U.S.C. § 103 as being unpatentable over Hawk, L., in view of Stauffer, A. et al., in view of [Kovacs, P. or Kepler, R.].

The prior art of Hawk teaches using up a flexible, gas impervious membrane [air-tight "bag"], a "bagged region of the seamed/jointed article surface", a vacuum pump and a pressure sensing means in a leakage examining apparatus that covers most features of the instant invention except for (1) conducting the

Art Unit: 2856

leakage finding measurements upon an empty fluid container; and except for (2) on clearly comparing a pressure/vacuum difference found for a measured container with an acceptable pressure/vacuum level; and except for (3) recording the exact location of leak sources so as to effect a later repair or such leak-prone area. However, the prior art of Stauffer discloses the concept of conducting leak testing on containers and making comparisons of a measured pressure/vacuum difference against a reference value or standard threshold value. It would have been obvious to one of ordinary skill in the art to consider using the apparatus of Hawk towards leakage testing of containers or fuel tanks since leaks and pinhole leaks are known capable of happening anywhere on a fluid holding container [top, bottom, sides- not just the seams or joints] and this concept of defect testing along/across a small area is obviously expandable to performing analogous defect testing upon a large area [or even the very large area of an entire container or tank to be enveloped within the membrane, bag, film or flexible wall(s)]. Likewise, it is also obvious to decide between leak-free status, leak-problem status, leak-weak status and leak-prone status (leak-susceptible status) on the basis of test results obtained by differential pressure/vacuum values for a randomly selected container as compared to the same

Art Unit: 2856

type values found for a similar container that is defined to be acceptable [non-leaky as high vacuum-holding], non-acceptable [leaky as low vacuum-holding] or intermediate [leakage-prone as medium vacuum-holding] in the known standard containers to be used as reference standards of applied-vacuum response [because this comparison method provides a feasible, efficient, repeatable and reliable rating scale system for making intelligent judicial decisions. Finally, the prior art of Kovacs teaches the technique of marking locations of discernable leakage thru a fluid-tight surface so that the defective area can be later repaired by some suitable means/ equipment- please see his Column 3, line 18 - Column 4, line 15 along with Figure 3 thereof for relevant details. In a complementary fashion, the Applicant is directed to review Kepler at his Column 5, lines 5-31 along with Figures 2, 3a & 3b for relevant details. It would have been obvious to one of ordinary skill in the art to consider recording or marking the positions of leakage defects so as to compile statistical probabilities of the most common fault modes, fault causes and fault area locations [as resultant from either high stress spots, more wear and tear exposure, extreme weight/pressure loadings, cracks/fractures, poor welding/fastening steps or defective manufacturing steps; besides the obvious opportunity of saving

Art Unit: 2856

monetary expense and safe operation by being able to salvage the container by sending appropriate personnel and equipment to the container with the goal of repairing same container at its faulty spots. The Examiner states for the record that Hawk teaches not only the process of detecting a Helium gas that passes thru from one side of a surface undergoing gas-tightness testing, but also monitoring the vacuum decrease [pressure increase] that occurs from a leaky defective area on a total body surface via the gas/air flow that is being drawn /pulled thru the body surface by the vacuum pump at such leaky spot(s)- please see his Column 2, lines 11-68, Column 3, lines 1-6 and Abstract, lines 5-17 (especially line 15) along with Figures 1-2 for pertinent details. Finally, the lessons of Stauffer should be purviewed in light of Column 3, line 45 - Column 4, line 59 (especially Column 4, lines 26-35 and lines 39-42), Column 5, lines 5-21 and Column 6, lines 10-30 along with Figure 1 & Claim 2 thereof for more pertinent details. It is also obvious that any potential source of future leakage problem is likely to manifest a weakened state of air-tightness or lessened vacuum strength-holding ability in a possible future leak site during the [soon to be recent] "near time" interim before the leak site actually develops into a full-blown flaw, mature defect or magnified leak event [worthy of more

Art Unit: 2856

than minuscule, intermediate or immediate repair attention before a dangerous flammability / explosion condition results].

6. Claim 5 is rejected under 35 U.S.C. § 103 as being unpatentable over Hawk, L., in view of Stauffer, A. et al., in view of [Kovacs, P. or Kepler, R.], as applied to claim 1 above, and further in view of Youngquist, R. et al..

As presented in the arguments and grounds for rejection given above at Paragraph 05, the combined prior art of Hawk, Stauffer et al., Kovacs and Kepler teaches all features of the instant invention except for having an ultrasonic leak detector be used to monitor for leaks in a fluid holding container. However, the prior art of Youngquist et al. teaches the use of an ultrasonic transducer with collecting horn and associated electronics that serves to locate the low level ultrasonic vibrations known to accompany small leaks (please see Figures 1-2 along with their Column 1, lines 15-64 and Column 3, line 5 - Column 4, line 18 for relevant details). It would have been obvious to one of ordinary skill in the art at the time of the invention to consider adding such a leakage finding device into the leakage detection apparatus suggested by the combined prior art systems of Hawk, Stauffer et al., Kovacs and Kepler because

Art Unit: 2856

of the user convenient hand-held portability factors and also because of the fantastically favorable increase in flaw sensitivity, leak direction finding and location identification power that results from some electrical circuitry processing used with this instant equipment.

Allowable Subject Matter

7. Claim 7 is allowable over the prior art of record.
8. The following is an Examiner's statement of reasons for allowance: The prior art fails to disclose a method for locating a potential source of fluid leakage in an Aircraft Fuel Tank by *applying a bagging film to a surface of the empty fuel tank over a suspected area of fuel leakage, then removing the air between the bagging film and the fuel tank's suspect surface area*, then measuring the vacuum between the bagging film and the suspect surface area, and finally comparing the measured vacuum with a predetermined acceptable vacuum value; where the method further involves gaining access to the fuel tank interior and *using a leak detector to check suspected leak source areas from the*

Art Unit: 2856

inside [of fuel tank] so as to record the location of fuel leak sources for subsequent repair.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited on the accompanying form PTO-892 are listed to show examples of state of the art apparatus and methods for determining locations of fluid leakages from fluid holding containers/enclosures or areas of deficient levels of air-tightness in fluid holding capable containers/enclosures [whether a pressure or a vacuum is held upon the container, tank, enclosure, reservoir or vessel], which share one or more features in common with the instant invention.

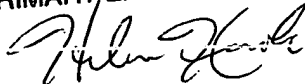
Art Unit: 2856

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to J. David Wiggins whose telephone number is (703) 305-4884. The Examiner can normally be reached on Monday to Friday from 9AM to 7PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Hezron E. Williams, can be reached on (703) 305-4705. The fax phone number for this Group is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Receptionist whose telephone number is (703) 305-4900.

HELEN KWOK
PRIMARY EXAMINER



WIGGINS/jdw
March 06, 2003